

Exam simulation

ATPL - Airline Transport Pilot license - Mass and Balance



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STUDENT NAME:

DATE AND TIME:

01. Which word or phrase shall be used if you want to say: 'Reduce your rate of speech'?

- a) Repeat
- b) Words twice
- c) Say again
- d) Speak slower

02. ICAO (International Civil Aviation Organization) Appendix 18 is a document dealing with:

- a) The noise pollution of aircraft
- b) The air transport of live animals
- c) The technical operational use of aircraft
- d) The safety of the air transport of dangerous goods

03. A higher pressure altitude at ISA temperature:

- a) Increases the climb limited take-off mass
- b) Decreases the take-off distance
- c) Has no influence on the allowed take-off mass
- d) Decreases the field length limited take-off mass

04. To calculate a allowable take-off mass, the factors to be taken into account include:

- a) The sum of the maximum landing mass and the fuel on board at take-off.
- b) The sum of the maximum zero fuel mass and the trip fuel.
- c) The sum of the maximum landing mass and the trip fuel.
- d) The maximum take-off mass minus the trip fuel.

05. A cumulonimbus cloud at mid-latitudes in summer contains

- a) Only water droplets
- b) Only ice crystals
- c) Ice crystals, water droplets and supercooled water droplets
- d) Ice crystals and water droplets but never supercooled water droplets

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06. Turbine blade stages may be classed as either "impulse" or "reaction". In an impulse blade section the pressure (i)... across the nozzle guide vanes and (ii)... across the rotor blades:

- a) (i) drops (ii) remains constant
- b) (i) remains constant (ii) rises
- c) (i) remains constant (ii) drops
- d) (i) rises (ii) remains constant

07. When excessively leaning the mixture for a better fuel economy, but still on the rich side of the peak EGT, the following engine parameter(s) may exceed their normal operating ranges:

- a) Oil temperature.
- b) Engine RPM.
- c) Manifold pressure.
- d) Cylinder head and exhaust gas temperature.

08. The centre of gravity near, but still within, the aft limit:

- a) Increases the stalling speed
- b) Improves the longitudinal stability
- c) Improves the maximum range
- d) Decreases the maximum range

09. An aeroplane equipped with irreversible flight controls:

- a) Does not require an artificial feel system.
- b) May be equipped with simple spring type feel units on all flight controls.
- c) Must be equipped with control locks.
- d) Requires an artificial feel system.

10. The empty mass of an aircraft is recorded in

- a) The loading manifest. It differs from Dry Operating Mass by the value of the 'useful load'.
- b) The weighing schedule. If changes occur, due to modifications, the aircraft must be re-weighed always.
- c) The loading manifest. It differs from the zero fuel mass by the value of the 'traffic load'.
- d) The weighing schedule and is amended to take account of changes due to modifications of the aircraft.

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11. Which of the following statements about the accuracy that can be obtained with the differential technique (D-GPS) of the satellite navigation system NAVSTAR/GPS is correct?

- a) A D-GPS receiver can detect and correct for SA providing a more accurate position fix
- b) The increase in accuracy of position fixes is independent of the receiver position in relation to a D-GPS ground station
- c) Only D-GPS allows position fixes accurate enough for 'Non Precision Approaches'
- d) The nearer a receiver is situated to a D-GPS ground station, the more accurate the position fix

12. During poor weather conditions a pilot should fly with reference to instruments because:

- a) His attention will be distracted automatically under these conditions
- b) Perception of distance and speed is difficult in an environment of low contrast
- c) Pressure differences can cause the altimeter to give wrong information
- d) The danger of a 'greying out' will make it impossible to determine the height above the terrain

13. During an arrival procedure under an IFR flight plan in VMC conditions, traffic avoidance is the responsibility of:

- a) The approach controller.
- b) The radar controller.
- c) The pilot in command.
- d) The airport controller.

14. Ground effect has the following influence on the landing distance:

- a) Does not change
- b) Decreases
- c) Increases, only if the landing flaps are fully extended
- d) Increases

15. Under a Traffic Service, the controller:

- a) Provides detailed traffic information on specific conflicting aircraft.
- b) Provides deconfliction advice as standard.
- c) Guarantees separation from all traffic.
- d) Provides service to IFR flights only.

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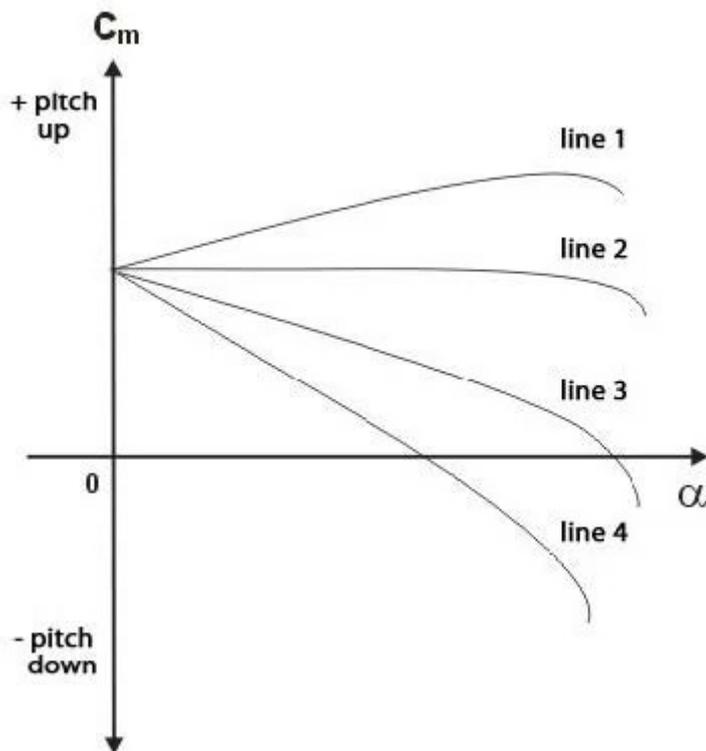


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16. An aircraft DME receiver does not lock on to its own transmissions reflected from the ground because:

- a) DME transmits twin pulses
- b) They are not on the receiver frequency
- c) DME uses the UHF band
- d) The pulse recurrence rates are varied

17. The pitching moment versus angle of attack line in the diagram, which corresponds to a CG located at the neutral point of a given aeroplane at low and moderate angles of attack is:



- a) Line 2.
- b) Line 1.
- c) Line 4.
- d) Line 3.

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18. On a Direct Mercator chart, meridians are:

- a) Parallel, equally spaced, vertical straight lines
- b) Inclined, unequally spaced, curved lines that meet at the nearer pole
- c) Parallel, unequally spaced, vertical straight lines
- d) Inclined, equally spaced, straight lines that meet at the nearer pole

19. Prior to an IFR flight, when filling in the ATC flight plan, the time information which should be entered in box 16: 'Total estimated time' is the time elapsed from:

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- a) Take-off until landing.
- b) Taxi-out prior to take-off until taxiing completion after landing.
- c) Taxiing until the IAF (Initial Approach Fix) of the destination aerodrome.
- d) Take-off until reaching the IAF (Initial Approach Fix) of the destination aerodrome.

20. On an asymmetrical, single curve aerofoil, in subsonic airflow, at low angle of attack, when the angle of attack is increased, the centre of pressure will (assume a conventional transport aeroplane):

- a) Move aft
- b) Remain matching the airfoil aerodynamic centre
- c) Move forward
- d) Remain unaffected

21. Prior to departure an aircraft is loaded with 16500 litres of fuel at a fuel density of 780 kg/m³. This is entered into the load sheet as 16500 kg and calculations are carried out accordingly. As a result of this error, the aircraft is

- a) Lighter than anticipated and the calculated safety speeds will be too low
- b) Lighter than anticipated and the calculated safety speeds will be too high
- c) Heavier than anticipated and the calculated safety speeds will be too low.
- d) Heavier than anticipated and the calculated safety speeds will be too high

22. Which of the following answers is correct?

- a) Personality is the outward result of behaviour and attitude and is adaptable.
- b) Behaviour is the outward result of personality and attitude and is not adaptable.
- c) Behaviour is the outward result of personality and attitude and is adaptable.
- d) Personality is the outward result of behaviour and attitude and is not adaptable.

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23. The aircraft is of Category A. The runway has edge lights and high intensity centre line lights. There is an accessible alternate aerodrome and the two pilot crew is IFR qualified on type. The minimum RVR / Visibility required for take-off is:

- a) 200 m
- b) 150 m
- c) 150 m if a threshold RVR is available
- d) 300 m

24. How many NM would an aircraft travel in 1 MIN 45 SEC if GS is 135 kt?

- a) 2.36
- b) 3.25
- c) 3.94
- d) 39.0

25. The requirement of good sunglasses is to

- a) Absorb enough visible light to eliminate glare without decreasing visual acuity
- b) Increase the time for dark adaptation
- c) Eliminate distortion in aircraft windshields
- d) Fit to the pilots individual taste

26. In an inertial navigation system (INS), should the platform be displaced from the horizontal, it would oscillate with a period, called Schuler period, of about:

- a) 84 seconds.
- b) 64 seconds.
- c) 24 minutes.
- d) 84 minutes.

27. What information may be displayed on an ATC radar screen connected only to a primary radar system?

- a) Aircraft position and SSR code.
- b) Aircraft position, SSR code and altitude.
- c) Aircraft position only.
- d) Aircraft altitude.

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28. The required time for final reserve fuel for turbojet aeroplane is:

- a) 45 min.
- b) 60 min.
- c) 30 min.
- d) Variable with wind velocity.

29. The maximum quantity of fuel that can be loaded into an aircraft's tanks is given as 2200 l. If the fuel density (specific gravity) is given as 0.79 the mass of fuel which may be loaded is:

- a) 1738 kg
- b) 1798 kg
- c) 2098 kg
- d) 2785 kg

30. When the term 'Overcast' is used in an aviation routine weather report (METAR), the amount of clouds covering the sky is:

- a) Less than 50%
- b) 50% or more
- c) No clouds but poor ground visibility
- d) 100%

31. The capacity of a battery is the:

- a) Intensity withstood by the battery during charging.
- b) Amount of ampere-hours that a fully charged battery can supply.
- c) No-load voltage of the battery multiplied by its rated output current.
- d) Number of cycles (charging and discharging) that a battery can withstand without deterioration of its cells.

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32. Part-CAT establishes that, a co-pilot is not assigned to operate at the flight controls during take-off and landing unless:

- a) He has carried out as pilot-in-command or as co-pilot at least three take-off and three landings in an aeroplane or an approved flight simulator of the type used, in the preceding 90 days.
- b) He has operated as pilot-in-command or as co-pilot at the controls during take-off and landing of the type to be used in the preceding 90 days.
- c) He has carried out as-pilot-in-command or as co-pilot at least three take-off and three landings in an aeroplane or an approved flight simulator of the type used, in the preceding 30 days
- d) He has carried out at least three flights as pilot-in-command or as a co-pilot at the controls of the type to be used, in the preceding 90 days.

33. The term 'useful load' as applied to an aircraft includes

- a) Traffic load plus usable fuel.
- b) The revenue-earning portion of traffic load plus useable fuel.
- c) The revenue-earning portion of traffic load only.
- d) Traffic load only.

34. Contrary to a person's personality, attitudes:

- a) Form part of personality and that, as a result, they cannot be changed in an adult
- b) Are non-evolutive adaptation procedures regardless of the result of the actions associated with them
- c) Are the product of personal disposition and past experience with reference to an object or a situation
- d) Are essentially driving forces behind changes in personality

35. A VFR flight when flying inside an ATS airspace classified as C has to maintain the following minima of flight visibility and distance from clouds

- a) 8 km at or above 3050 m (10.000 ft) AMSL 1500 m horizontal and 300 m vertical from clouds
- b) 8 km at or above 3050 m (10.000 ft) AMSL, and clear of clouds
- c) 5 NM at or above 3050 m (10.000 ft) AMSL, 1500 m horizontal and 300 m vertical from clouds
- d) 5km at or above 3050 m (10.000 ft) AMSL 1500 m horizontal and 300 m vertical from clouds

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**36. A directional gyro is: 1- a gyroscope free around two axis 2- a gyroscope free around one axis 3- capable of self-orientation around an earth-tied direction 4- incapable of self-orientation around an earth-tied direction. The combination which regroups all of the correct statements is:
NB: the degree(s) of freedom of a gyro does not take into account its rotor spin axis.**

- a) 2 - 3
- b) 2 - 4
- c) 1 - 3
- d) 1 - 4

37. The International Civil Aviation Organisation (ICAO) establishes:

- a) Proposals for aeronautical regulations in the form of 18 annexes.
- b) Aeronautical standards adopted by all states.
- c) Standards and recommended practices applied without exception by all states, signatory to the Chicago convention.
- d) Standards and recommended international practices for contracting member states.

38. Given: Distance from departure to destination 1950 NM GS Out 400 kt GS Home 300 kt What is the time of the PET from the departure point?

- a) 223 min
- b) 167 min
- c) 125 min
- d) 29 min

39. What does the abbreviation 'SAR' mean?

- a) Surveillance airport radar.
- b) Standard arrival route.
- c) Search and rescue.
- d) Secondary altimeter responder.

40. Having made an important decision, a Commander of an aircraft should:

- a) Explain the reasons for the decision only if time permits in the air
- b) As the leader of the crew, never need explain the reasons behind the decision
- c) Always try to make time to explain the reasons for the decision even if it is after landing
- d) Explain the reasons for the decision only if asked

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41. A diluter demand oxygen regulator:

- a) Is only recommended for use with smoke in the cockpit.
- b) Delivers oxygen flow only above FL 100.
- c) Mixes air and oxygen in a passenger oxygen mask.
- d) Delivers oxygen flow when inhaling.

42. Which of the following calls is a 'general call'?

- a) ALL STATIONS Stephenville CONTROL
- b) YX-EFG, YX-FGH over
- c) YX-DEF Stephenville CONTROL
- d) YX-ABC, YX-BCD, YX-CDE Stephenville CONTROL

43. The decrease in temperature, per 100 metres, in a saturated rising parcel of air at lower level of the atmosphere is approximately

- a) 1°C
- b) 1.5°C
- c) 0.6°C
- d) 0.35°C

44. Find the time to the Point of Safe Return (PSR). Given: Maximum useable fuel 15000 kg, Minimum reserve fuel 3500 kg, TAS out 425 kt, Head wind component out 30 kt, TAS return 430 kt, Tailwind component return 20 kt, Average fuel flow 2150 kg/h

- a) 2 h 59 min
- b) 3 h 43 min
- c) 2 h 43 min
- d) 2 h 51 min

45. Cognitive evaluation which leads to stress is based on:

- a) The evaluation of the capabilities of the individual and the time available
- b) The evaluation of the situation and the state of fatigue of the individual
- c) The capabilities of the individual and the solutions provided by the environment
- d) The evaluation of the situation and the evaluation of capabilities to cope with it

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46. My message will be more effective and understandable if I:

- a) Use the words twice method
- b) Stress the end of message
- c) Maintain the speaking volume at a constant level
- d) Stress every beginning of message

47. The crash/fire axe is part of the safety equipment fitted to passenger aircraft. Its function is to

- a) Activate a radio survival beacon by cutting off the red coloured top
- b) Free exits in case of evacuation via the sides.
- c) Settle an escalating conflict with unreasonable passengers, who threaten flight safety.
- d) Obtain forced access to a fire behind a panel and a general purpose tool during evacuation.

48. Which of these statements about structure design principles are correct or incorrect? 1) In structural design, FAIL SAFE implies redundant load paths. 2) A SAFE LIFE structure is based on a declared number of cycles or time period.

- a) 1) is correct, 2) is correct.
- b) 1) is incorrect, 2) is correct.
- c) 1) is correct, 2) is incorrect.
- d) 1) is incorrect, 2) is incorrect.

49. Route 'A' (44°N 026°E) to 'B' (46°N 024°E) forms an angle of 35° with longitude 026°E. Variation at A is 3°E. What is the initial magnetic track from A to B?

- a) 032°
- b) 328°
- c) 038°
- d) 322°

50. A VMO-MMO warning device consists of an alarm connected to:

- a) A barometric aneroid capsule subjected to a dynamic pressure and an airspeed sensor subjected to a static pressure.
- b) A barometric aneroid capsule and an airspeed sensor subjected to dynamic pressure.
- c) A barometric aneroid capsule subjected to a static pressure and an airspeed sensor subjected to a dynamic pressure.
- d) A barometric aneroid capsule and an airspeed sensor subjected to a static pressure.

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51. Which of the following combinations adversely affects take-off and initial climb performance?

- a) High temperature and high relative humidity
- b) Low temperature and low relative humidity
- c) High temperature and low relative humidity
- d) Low temperature and high relative humidity

52. Given a maximum floor loading intensity of 650 kg per square metre, what is the maximum mass of a package that can be safely supported on a pallet measuring 80 cm by 80 cm?

- a) 416.0 kg
- b) 101.6 kg
- c) 41.6 kg
- d) 1015.6 kg

53. Shall an ATC route clearance always be read back:

- a) No, if the communication channel is overloaded
- b) No, if the ATC route clearance is transmitted in a published form (for example, Standard Instrument Departure Route/SID)
- c) No, if the content of the ATC clearance is clear and no confusion is likely to arise
- d) Yes, unless authorized otherwise by ATS authority concerned

54. Outer marker transmits on 75 MHz and has an aural frequency of:

- a) 1300 Hz
- b) 400 Hz
- c) 3000 Hz
- d) 2000 Hz

55. The following factors increase stall speed:

- a) Increasing bank angle, increasing thrust, slat extension
- b) A higher weight, selecting a higher flap setting, a forward CG shift
- c) A lower weight, decreasing bank angle, a smaller flap setting
- d) An increase in load factor, a forward CG shift, decrease in thrust

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56. Which statement is correct for a descent without engine thrust at maximum lift to drag ratio speed?

- a) The higher the gross mass the lower is the speed for descent.
- b) The higher the average temperature (OAT) the lower is the speed for descent.
- c) The higher the gross mass the greater is the speed for descent.
- d) The mass of an aeroplane does not have any effect on the speed for descent.

57. The purpose of the TAS input, from the air data computer, to the Inertial Navigation System is for:

- a) position update in Attitude mode
- b) position update in Navigation mode
- c) the calculation of wind velocity
- d) the calculation of drift

58. An aeroplane is in steady cruise at flight level 290. The auto-throttle maintains a constant Mach number. If the total temperature increases, the calibrated airspeed:

- a) Increases.
- b) Remains constant.
- c) Increases if the static temperature is higher than the standard temperature, decreases if lower.
- d) Decreases.

59. A condition of urgency is defined as:

- a) A condition of being threatened by serious and/or immediate danger and of requiring immediate assistance.
- b) A condition requiring immediate assistance.
- c) A condition concerning the safety of an aircraft or other vehicle or of some person on board or within sight, but which does not require immediate assistance.
- d) A condition concerning the safety of an aircraft or other vehicle or of some person on board or within sight and requiring immediate assistance.

60. Considering an airspeed indicator, a second striped needle, if installed, indicates:

- a) Never-exceed speed (VNE)
- b) Maximum operating speed (VMO)
- c) Never-exceed speed (VNE) or maximum operating speed (VMO), depending on which is the higher
- d) Never-exceed speed (VNE) or maximum operating speed (VMO), depending on which is the lowest

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61. What does the abbreviation 'FIR' mean?

- a) Flight information required.
- b) Flight information region.
- c) Flight information radar.
- d) Flow information received.

62. In North Atlantic high-level operations, the speed reference for turbo-jet aircraft is the:

- a) True airspeed
- b) Ground speed
- c) Indicated airspeed
- d) Mach number

63. The ICAO annex which deals with entry and departure of persons and their baggage in international flights is:

- a) Annex 8
- b) Annex 6
- c) Annex 9
- d) Annex 15

64. For the purpose of completing the Mass and Balance documentation, the Dry Operating Mass is defined as:

- a) The total mass of the aircraft ready for a specific type of operation excluding all usable fuel and traffic load.
- b) The total mass of the aircraft ready for a specific type of operation excluding crew and crew baggage.
- c) The total mass of the aircraft ready for a specific type of operation excluding all traffic load.
- d) The total mass of the aircraft ready for a specific type of operation excluding all usable fuel.

65. With the SSR transponder selected ON and "ALT" (Mode C) selected, an ATSU requests: "G-ABCD, Verify your level," this is to:

- a) Identify the aircraft position.
- b) Calibrate the radar equipment.
- c) Verify the accuracy of the Mode C level information displayed to the controller.
- d) Check your altimeter setting.

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66. An aircraft making a radar approach should be directed to execute a missed approach if no clearance to land has been received from the non-radar controller by the time the aircraft reaches a distance of:

- a) 5 NM from the touchdown
- b) 4 NM from the touchdown
- c) 1.5 NM from the touchdown
- d) 2 NM from the touchdown

67. The approach climb requirement has been established so that the aeroplane will achieve:

- a) Manoeuvrability in the event of landing with one engine inoperative.
- b) Minimum climb gradient in the event of a go-around with one engine inoperative.
- c) Obstacle clearance in the approach area.
- d) Manoeuvrability during approach with full flaps and gear down, all engines operating.

68. Complete line 6 of the 'FLIGHT NAVIGATION LOG', positions 'L' to 'M'. What is the HDG°(M) and ETA?

Line No.	Time	Course/ Track (T)	W/V	HDG (T)	VAR	HDG (M)	POSITION FROM TO	CAS/ MACH	FL OAT	TAS	GS	DIST	TIME	ETA
1	1015	270	050/40		7E		A B	210	180 -20			300		
2	1050	180	320/50		5W		C D	175	160 -10			480		
3	1125	090	140/60		10W		E F	M 0.82	350 -40			300		
4	1210	360	315/70		10E		G H	M 0.78	310 -35			600		
5	1245	330	240/30		17W		J K	150	100 -10			275		
6	1355	070	020/60		11W		L M	M 0.84	390 -55			495		

- a) HDG 075° - ETA 1452 UTC
- b) HDG 064° - ETA 1449 UTC
- c) HDG 070° - ETA 1459 UTC
- d) HDG 075° - ETA 1502 UTC

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69. SSR special codes. ATC has assigned you the transponder code 5320. In case of losing two way radio communication, you have to squawk:

- a) Mode A Code 7700
- b) Mode A Code 5320
- c) Mode A Code 7500
- d) Mode A Code 7600

70. An aircraft in distress shall send the following signal by radiotelephony:

- a) PAN PAN, PAN PAN, PAN PAN
- b) DETRESFA, DETRESFA, DETRESFA
- c) URGENCY, URGENCY, URGENCY
- d) MAYDAY, MAYDAY, MAYDAY

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Response Scheme

Compare your answers with the following diagram and mark your score!

01: D	02: D	03: D	04: C
05: C	06: A	07: D	08: C
09: D	10: D	11: D	12: B
13: C	14: D	15: A	16: B
17: A	18: A	19: D	20: C
21: B	22: C	23: B	24: C
25: A	26: D	27: C	28: C
29: A	30: D	31: B	32: A
33: A	34: C	35: A	36: D
37: D	38: C	39: C	40: C
41: D	42: A	43: C	44: D
45: D	46: C	47: D	48: A
49: D	50: C	51: A	52: A
53: D	54: B	55: D	56: C
57: C	58: B	59: C	60: B
61: B	62: D	63: C	64: A
65: C	66: D	67: B	68: D
69: D	70: D		

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Response form

Use this form to mark your answers

01: _____	02: _____	03: _____	04: _____
05: _____	06: _____	07: _____	08: _____
09: _____	10: _____	11: _____	12: _____
13: _____	14: _____	15: _____	16: _____
17: _____	18: _____	19: _____	20: _____
21: _____	22: _____	23: _____	24: _____
25: _____	26: _____	27: _____	28: _____
29: _____	30: _____	31: _____	32: _____
33: _____	34: _____	35: _____	36: _____
37: _____	38: _____	39: _____	40: _____
41: _____	42: _____	43: _____	44: _____
45: _____	46: _____	47: _____	48: _____
49: _____	50: _____	51: _____	52: _____
53: _____	54: _____	55: _____	56: _____
57: _____	58: _____	59: _____	60: _____
61: _____	62: _____	63: _____	64: _____
65: _____	66: _____	67: _____	68: _____
69: _____	70: _____		